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By Linda A. Iimura
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Date June 11, 2001

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Inventor(s): Richard C. Walker et al.

Group Art Unit:

Serial No.: 09/816,605

Examiner:

Filed: 23 March 2001

Title: *Network Monitoring System With Built-in Monitoring Data Gathering*

Atty Docket: 10003751

PRELIMINARY AMENDMENT

Assistant Commissioner of Patents
Washington, D.C. 20231

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Sir:

Prior to examination, please amend the application as follows:

In the Specification

Please replace paragraph [0060] with the following:

[0060] Referring once more to Figure 2, the monitoring data processor 104 receives the monitoring data from the multiple channels on each channel card via the input/output port 134. The monitoring data processor includes the data base engine 140 that builds the data base 142 from the monitoring data in the monitoring data packets received from the router 102. The data base engine puts the different items included in the monitoring data, such as the header copies and the time stamps, in different fields of the data base. The data base can include

fields for such items as source address, destination address, packet size and packet type.

Please replace paragraph [0074] with the following:

[0074] The monitoring data generated from all the channels of the router 202 pass through the fabric of the router to one channel of the router, whence the monitoring data are fed to the monitoring data processor 204. In the example shown, the monitoring data pass through the fabric of the router to the output channel 217. The monitoring data are fed from the output channel through the network 220 to the monitoring data processor 204. The monitoring data passed to the output channel 217 may alternatively be fed to the monitoring data processor via a non-network connection, such as a cable, an optical fibre or some other suitable connection, extending between the connector 222 on the output channel to the network port 234 on the monitoring data processor.

Please replace paragraphs [0077] and [0078] with the following:

[0077] The monitoring data processor 204 includes the network port 234 through which it is connected to the network 220. In the example shown, the network port is connected via the network interface 246 to the data base engine 140 and the analysis engine 144. The router 202 may transmit the monitoring data to the monitoring data processor, as will be described below.

[0078] The monitoring data processor 204 may be connected by the network port 234 and the network 220 to other monitoring data processors (not shown) in a hierarchical structure that enables performance data for an entire network (not shown) to be generated, as described above. The monitoring data processor may alternatively be connected to one or more of such other monitoring data processors by another network or by some other interconnection scheme.

Please replace paragraph [0099] with the following:

[0099] In the network monitoring system 300, the internal monitoring data processor 304 is internal to the router 302. The internal monitoring data processor is preferably configured to appear to the router 302 as one of its channels and is allocated a channel address so that it can receive the envelopes of monitoring data transferred to the backplane 314 from the channel cards 212. The internal monitoring data processor can be configured to perform such tasks as header counting, header aggregation and compression, header selection and header sampling in addition to, or instead of, the header processors, such as the header processor 223, in the channel cards 212. The internal monitoring data processor 304 can additionally or alternatively have an internal structure similar to that of the monitoring data processor 204, described above, and can perform the data base building and data analysis performed by the monitoring data processor 204 described above. This would allow the external monitoring data processor 204 to be omitted.

Please replace paragraphs [0101] with the following:

[0101] Figure 7 additionally shows the output of the internal monitoring data processor 304 connected to the performance data output 386. When the internal monitoring data processor is located on the backplane 314 as shown, the performance data output enables the performance data to be output directly from the backplane, in monitoring data packets, in envelopes or in some other data format. The monitoring data may be similarly output.

A paper showing the changes made to the above paragraphs is attached.

In the Claims

Amended versions of claims 21 and 22 follow. A paper showing the amendments made to claims 21 and 22 is attached.

21. (amended) The method of claim 17, additionally comprising transmitting at least one of (a) the data base and (b) performance data derived at least in part from the data base to at least one other node of the network.

22. (amended) The method of claim 17, in which generating the performance data includes performing hierarchical processing of data bases and performance data received from nodes of the network.

In the Drawings

The applicants respectfully request the Examiner's approval of the proposed changes indicated in red ink in the drawing of Figure 5.

Remarks

The amendments to paragraphs [0074], [0077] and [0078] and to the drawing of Figure 5 correct a reference numeral duplication.

The amendments to paragraphs [0060], [0099] and [0101] conform the reference numerals used in the specification to the reference numerals used in the drawings.

The amendments to claims 21 and 22 correct a dependency error in these claims.

The applicants believe that the application as now amended is in condition for allowance, and respectfully request such favorable action. If any matters remain outstanding in the application, the Examiner is respectfully invited to telephone the applicants' attorney at (650) 485-3015 so that these matters may be resolved.

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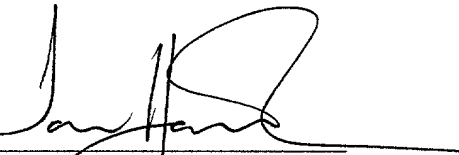
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Respectfully submitted,

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09/816, 605 -- Paper Showing Amendments Made to Claims 21 and 22

21. (amended) The method of claim 17, [15,] additionally comprising transmitting at least one of (a) the data base and (b) performance data derived at least in part from the data base to at least one other node of the network.

22. (amended) The method of claim 17, [15,] in which generating the performance data includes performing hierarchical processing of data bases and performance data received from nodes of the network.

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09/816, 605 -- Paper Showing Amendments Made to Paragraphs [0060], [0074], [0077], [0078], [0099] and [0101]

[0060] Referring once more to Figure 2, the monitoring data processor 104 receives the monitoring data from the multiple channels on each channel card via the input/output port 134. The monitoring data processor includes the data base engine 140 that builds the data base 142 from the monitoring data in the monitoring data packets received from the router 102. [104.] The data base engine puts the different items included in the monitoring data, such as the header copies and the time stamps, in different fields of the data base. The data base can include fields for such items as source address, destination address, packet size and packet type.

[0074] The monitoring data generated from all the channels of the router 202 pass through the fabric of the router to one channel of the router, whence the monitoring data are fed to the monitoring data processor 204. In the example shown, the monitoring data pass through the fabric of the router to the output channel 217. The monitoring data are fed from the output channel through the network 220 to the monitoring data processor 204. The monitoring data passed to the output channel 217 may alternatively be fed to the monitoring data processor via a non-network connection, such as a cable, an optical fibre or some other suitable connection, extending between the connector 222 on the output channel to the network port 234 [224] on the monitoring data processor.

[0077] The monitoring data processor 204 includes the network port 234 [224] through which it is connected to the network 220. In the example shown, the network port is connected via the network interface 246 to the data base engine 140 and the analysis engine 144. The router 202 may transmit the monitoring data to the monitoring data processor, as will be described below.

[0078] The monitoring data processor 204 may be connected by the network port



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234 [224] and the network 220 to other monitoring data processors (not shown) in a hierarchical structure that enables performance data for an entire network (not shown) to be generated, as described above. The monitoring data processor may alternatively be connected to one or more of such other monitoring data processors by another network or by some other interconnection scheme.

[0099] In the network monitoring system 300, the internal monitoring data processor 304 is internal to the router 302. The internal monitoring data processor is preferably configured to appear to the router 302 [202] as one of its channels and is allocated a channel address so that it can receive the envelopes of monitoring data transferred to the backplane 314 from the channel cards 212. The internal monitoring data processor can be configured to perform such tasks as header counting, header aggregation and compression, header selection and header sampling in addition to, or instead of, the header processors, such as the header processor 223, in the channel cards 212. The internal monitoring data processor 304 can additionally or alternatively have an internal structure similar to that of the monitoring data processor 204, described above, and can perform the data base building and data analysis performed by the monitoring data processor 204 described above. This would allow the external monitoring data processor 204 to be omitted.

[0101] Additionally or alternatively, the internal monitoring data processor 304 may package the performance data in monitoring data packets enclosed in envelopes and transmit the envelopes through the fabric of the router 302 [202] to the output channel 217. The output channel would then transmit the performance data via the network 220 to another monitoring data processor in the above-described hierarchical arrangement of monitoring data processors. The internal monitoring data processor may transmit the monitoring data in a similar way.